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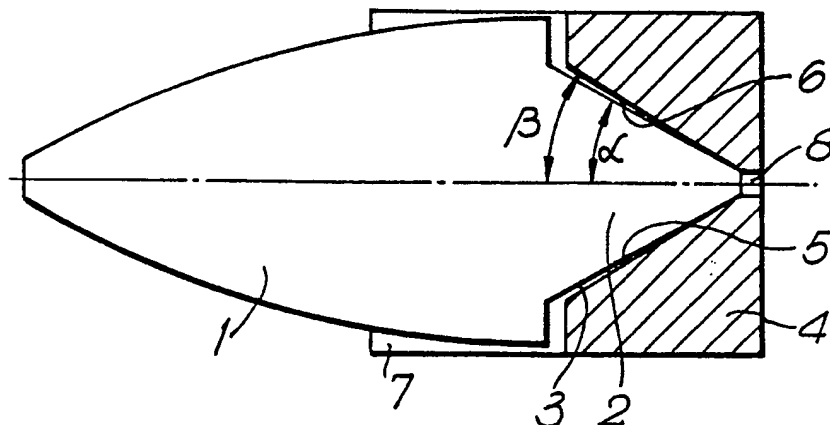
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(54) Ammunition round.

(57) An ammunition round comprises a bullet or slug (1) and a sabot (4) mounted on the rear of the slug (1) for sealing expanding gas from the firing of the round within the barrel behind the bullet or slug (1). The bullet or slug (1) has a rearwardly tapered conical protrusion (2) and the sabot has a complementary conically tapered recess (5), the conical angle ( $\beta$ ) of the recess (5) in the sabot (4) being greater than the conical angle ( $\alpha$ ) of the protrusion (2) on the bullet or slug (1).

Fig. 1.



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AMMUNITION ROUND.

The present invention relates to ammunition and particularly to ammunition for use in conventional small arms weapons having rifled or non-rifled barrels.

Our EP-A-0129777 describes an ammunition round which comprises a casing for containing a propelling charge, a substantially full bore diameter bullet which has a plurality of full length grooves in its outer surface extending helically around or substantially parallel to the longitudinal axis of the bullet, and a sabot in which the bullet seats and which seals the bullet into the casing, the sabot having at least a part with a diameter greater than the diameter of the bullet and a plurality of fingers engaging respective ones of the grooves in the bullet to cause the bullet to spin as the sabot is rotated by engagement with rifling grooves in a barrel through which the round is fired. A similar ammunition round for non-rifled barrels is also disclosed.

Whilst such an ammunition round works satisfactorily, in certain circumstances it may be desirable to improve sealing between the sabot and the bore of the barrel.

According to the present invention therefore in an ammunition round which comprises a bullet or slug and a sabot mounted on the rear of the slug for sealing expanding gas from the firing of the round within the barrel behind the bullet or slug, the bullet or slug has a rearwardly tapered conical protrusion and the sabot has a complementary conically tapered recess, the conical angle of the recess in the sabot being greater than the conical angle of the protrusion on the bullet or slug.

Preferably, the bullet and slug are of the type referred to in EP-A-0129777, in which the bullet has helical or parallel grooves which are engaged by fingers on the sabot in order to transfer spin from the sabot to the bullet mechanically, but the invention has application to prior, conventional bullet and sabot configurations.

By providing the sabot and bullet or slug with mating parts having different conical angles, expansion of the sabot under the action of the expanding gas, caused by relative axial sliding movement of the sabot on the conical protrusion of the bullet, is evenly distributed over the length of the cylindrical peripheral surface of the sabot. It has been found that when the conical angles on the protrusion and the recess are the same, uneven distribution of the expansion results, in turn resulting in a poor gas seal. This is due to the varying wall thickness of the sabot resulting from the conical recess.

One example of an ammunition round constructed in accordance with the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a longitudinal sectional view of the ammunition round; and

Figure 2 is a similar view showing the configuration of the ammunition round after firing.

In both Figures 1 and 2 the ammunition round casing and the barrel of the gun through which the round is fired have been removed for clarity.

The bullet or slug 1 is preferably of the type shown in Figures 1 to 5, or 6 to 7, or 12 in EP-A-0129777.

The bullet or slug 1 is suitably modified to include a rearward protrusion 2 having a rearward conical taper of conical angle  $\alpha$ , thus providing a conical surface 3. The sabot 4, which is preferably plastics, has a complementary conical recess 5, the conical surface 6 of which has a conical angle  $\alpha$  greater than the angle  $\alpha$  of the taper on the protrusion 2. The sabot preferably has forwardly projecting fingers 7 which engage in grooves (not shown) in the bullet 1, as described in our EP-A-0129777.

In the example shown the conical angle on the protrusion is  $55^\circ$  and that on the sabot is  $60^\circ$ . The sabot 4 has a central aperture 8 which allows forward movement of the sabot (see Figure 2) on firing of the round under the gas pressure acting on the rear face 9 of the sabot. Due to the different conical angles on the sabot recess and bullet protrusion a substantially uniform expansion 11 of the sabot over the length of its cylindrical periphery 10 is produced on firing as shown in Figure 2 as the sabot is compressed against the rear of the bullet.

**Claims**

1. An ammunition round which comprises a bullet or slug (1) and a sabot (4) mounted on the rear of the slug for sealing expanding gas from the firing of the round within the barrel behind the bullet or slug, the bullet or slug having a rearwardly tapered conical protrusion (2) and the sabot having a complementary conically tapered recess (5), characterized in that the conical angle ( $\beta$ ) of the recess (5) in the sabot is greater than the conical angle ( $\alpha$ ) of the protrusion (2) on the bullet or slug.

2. A round according to claim 1, in which the conical angle ( $\alpha$ ) of the protrusion is  $55^\circ$ .

3. A round according to claim 1 or claim 2, in which the conical angle ( $\beta$ ) of the recess is  $60^\circ$ .

4. A round according to any of claims 1 to 4, wherein the sabot has an aperture (8) extending from the apex of the recess (5) to the rear face (9) of the sabot opposite the recess.

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Fig. 1.

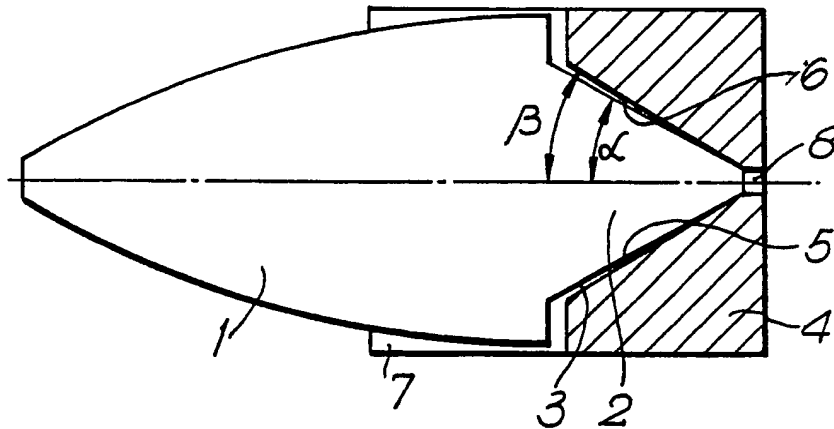
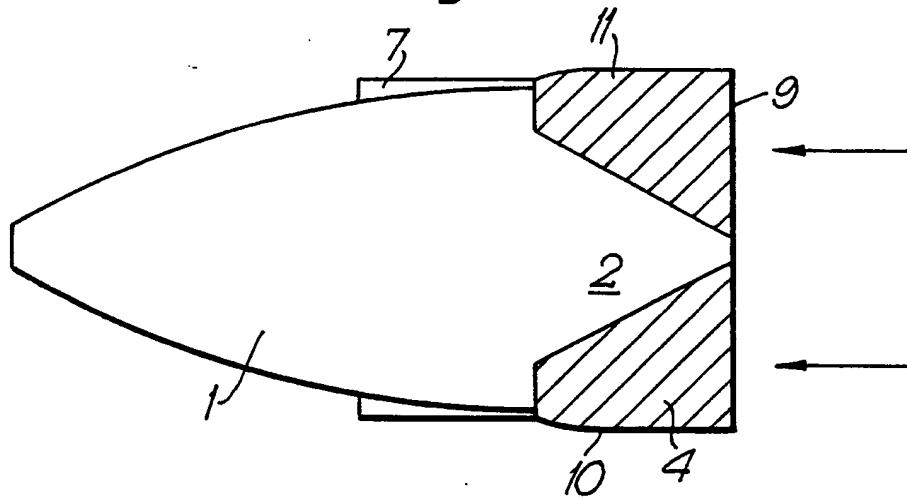


Fig. 2.





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## EUROPEAN SEARCH REPORT

Application Number

EP 87 11 3911

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	FR-A- 828 459 (DOBRJANSKY) * Page 1, lines 35-58; page 2, lines 1-7, 76-104; page 3, lines 1-25; figures 1-4 *	1	F 42 B 11/02 F 42 B 13/16
Y	---	4	
Y	GB-A- 145 808 (ALLOM) * Page 2, lines 90-112; page 3, lines 47-70; figures 1-3 *	4	
A	US-A-2 983 225 (WALKER) * Column 2, lines 12-35; column 3, lines 8-37; figure 1 *	1,4	
A	CH-A- 545 956 (KOPSCH) * Figure 4 *	1	
A	GB-A- 737 348 (DONNER)		
A	WO-A-8 301 300 (ROBINS)		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			F 42 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24-11-1987	Examiner VAN DER PLAS J.M.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			